REMARKS

As a preliminary matter, it is noted that there are currently no *prior art* rejections pending. Reference is made to MPEP § 2143.03 under the heading "Limitations Which Do Not Find Support in the Original Specification Must Be Considered" which requires the Examiner to consider the patentability of the claims with respect to prior art notwithstanding the alleged lack of written description to a portion thereof. Accordingly, it is respectfully submitted that the pending claims are patentable over the cited prior art based on the absence of a prior art rejection in the outstanding Office Action.

Claims 1-9 and 11-17 stand rejected solely under 35 U.S.C. § 112, first paragraph (written description). This rejection is respectfully traversed for the following reasons.

To begin, it is submitted that "[t]he subject matter of the claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement" (*see* MPEP § 2163.02). In this regard, it is respectfully submitted that Applicants' specification need not literally state that "the impurity ions do not reach the lower portion of the floating gate electrode in the active region." For at least the reasons that follow, it is respectfully submitted that Applicants' specification and drawings, taken collectively, would convey to one of ordinary skill in the art that Applicants had possession of the claimed invention.

The Examiner is first directed to page 13, lines 12-18 of Applicants' specification describing one exemplary embodiment of the present invention, which discloses the preference for the impurity ions to be injected ***parallel*** to the side surface of the gate structure so that the ion injection adjustment film can mask the impurity ions against the tunnel insulation film, whereby the ion injection adjustment film located on the side surface of the gate structure can be perpendicular to the substrate surface. As would be readily recognizable by one of ordinary skill in the art, the

aforementioned disclosure suggests that the ion injection can be performed perpendicular to the substrate surface.

Turning now to page 13, line 23 - page 14, line 1, Applicants' specification goes on to state that because impurity ions injected into the ion injection adjustment film can be scattered within the ion injection adjustment film, they can also diffuse in a direction parallel to the substrate surface, so that an ion injection adjustment film in one exemplary embodiment must have a film thickness which does not allow injected impurity ions to reach at least the floating gate electrode (*see* "X" in the *attached* Fig. A). This disclosure in combination with the disclosure of ion injection being performed perpendicular to the substrate surface, collectively, describes impurity ions that do not overlap the floating gate electrode immediately after the ion injection ***as shown in the exemplary diffusion regions 21A, 22A in Fig. 1C of Applicants' drawings***. In other words, the aforementioned portions of Applicants' specification describe impurity ions that do not reach the lower portion of the floating gate electrode in the active region. That is, in the exemplary embodiment the impurity ions, which are injected into the substrate, diffuse only by scattering in the direction parallel to the substrate surface, and do not physically diffuse beyond the film thickness of the ion injection adjustment film in the direction parallel to the substrate surface (*see attached* Fig. A wherein the overlap region (Y) shown in *attached* Fig. B, representing post-annealing, is NOT present).

According to one aspect of the present invention, after ion injection of the impurity ions, by performing heat treatment (e.g., a thermal oxidation process in an oxidizing ambient), even if the tunnel insulation film is damaged, the damaged portions can be restored and injected impurity ions can be diffused to the channel region located below the gate structure (*see* page 13, lines 6-11 of Applicants' specification). Hence, as shown in the exemplary diffusion regions 21B, 22B in Fig. 2A of Applicants' drawings, the impurity ions overlap the floating gate electrode (*see* "Y" in the

attached Fig. B). In other words, the thermal treatment allows the impurity ions to reach the lower portion of the floating gate electrode in the active region, thereby enabling the diffusion region to function as a source (drain) layer.

The Examiner is further directed to Figs. 1B - 2A of Applicants' drawings and the description from page 18, line 9 - page 20, line 13 of Applicants' specification corresponding thereto, which further supports the claimed invention in terms of a specific example embodied thereby disclosed as an *exemplary* embodiment.

Based on the foregoing, it is respectfully submitted that all pending claims satisfy the written description requirement established under § 112, first paragraph. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. § 112, first paragraph be withdrawn.

CONCLUSION

Having fully and completely responded to the Office Action, Applicants submit that all of the claims are now in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below. To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,
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